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ABSTRACT

Because of technological advances and resultant changes in American life, education is needed to insure economic security in spite of the actual level of education needed to do a particular job. Inner city schools, often not able to provide adequate education for their students, should make use of the wide range of applications of technological aids in the schools and the direct relationship of these aids to pupil learning. (SP)

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TECHNOLOGY AND THE INNER CITY SCHOOL

by James P. Comer*

Technological advancement and the resultant changes, as much as neglect and discrimination, are responsible for the crisis in education in inner city schools. It appears only proper then that the potential of technology be harnessed to facilitate the education of young people on which it is making new demands.

Prior to the past seventy years, most people did not receive a formal education and did not need one. Most could grow up and earn a living just as their parents and their parents' parents before them. But within the lifetime of today's senior citizens, America has moved from a horse and buggy age through the age of train and automobile to the jet and now super-jet age. In every field of human endeavor, there have been remarkable technological advancements and it is predicted that the changes from now until the year 2000 will be greater than those which have occurred since 1900.

Technology has changed or greatly modified life styles, politics, religion, recreation--indeed, every aspect of American life. Most critical, it has changed and will continue to change the way we earn a living. In general, physical labor is less necessary in all areas of work and employment today than ever before. There is every indication that the trend will continue. The better jobs today and in the future will require a relatively high degree of education and training. As a result, many Americans are faced with an unprecedented problem.

Since the late 19th century, there has been a general pattern of three

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generational occupational movement in many American families. Unskilled immigrants and other newcomers held jobs requiring no skill. Their children often acquired skilled labor jobs and in the next generation moved to professional occupations or jobs requiring a great deal of skill and training. Excluded minority groups, late-comers and isolated Americans did not move in this pattern very often. Now a disproportionate number in these groups are unskilled and the demand of the job market today dictates that those who want economic security must move from the unskilled labor class to the highly skilled and professional class in one generation--a task which is more difficult than is often assumed.

While there is some evidence that automated industry does not require the high degree of education and training often claimed, there is little indication that hiring practices will not continue to favor the better educated people. Thus it still holds that education is needed to insure economic security in spite of the actual level of education needed to do a particular job.

Public school education has always missed a disproportionate number of "special people." Immigrants, Spanish-speaking people, Southern rural blacks and whites, migrants to the city, Indians and other young people have failed to benefit from educational opportunities in disproportionate numbers over the years. In the past this was considered unfortunate but not a tragedy. There was work and other opportunities available for those who did not take to the academic program. Today the child who cannot learn is often destined to a future of economic insecurity.

There are serious social and psychological consequences for economically insecure people. A sense of personal adequacy for males is closely related to his capacity to provide food, clothing and shelter or basic necessities

for his family. Being able to provide these necessities enables a man to give the social, economic and emotional security to his wife and/or the mother of his children who has a primary role in providing the love, limits, guidance and direction needed for adequate socialization and psychological development of their children. To the degree that the female parent does not receive support and security, she is less able to perform her vital role as wife and mother. When males are unable to meet these basic requirements, they often exploit their wives and children to meet their own psychological needs. Alcoholism, desertion and other methods of dealing with a sense of personal inadequacy all take their toll on family stability and adequate child development. Certainly similar problems occur at every economic level but a disproportionate number occur where economic uncertainty is more frequent and prolonged.

For many years now there has been a movement of the better educated, better employed people from central cities to the periphery and to suburbia. As a result, a disproportionate number of minority groups and other groups who have not had access to opportunities for occupational advancement remain in the central city; indeed they have become its principal occupants. It is often assumed that they will move to a higher occupational and security level as directly as previous groups. It must be remembered that previous groups often moved to a better occupational and economic position in large numbers, not because of marked educational gains, but because of union gained benefits in a pre-automation age of industry. Today without critical attention to inner city education, such movement will not necessarily be the case.

Many youngsters in the inner city are intelligent, have received adequate nuturance, socialization and guidance and come to school prepared to learn. Their parents are enthusiastic about education, have high as-

pirations for the youngsters and are supportive of the educational process. Many youngsters show remarkable strength in spite of the difficulties they experience. In fact, independence, spontaneity and curiosity--where it is permitted--are observed among inner city youngsters perhaps more often or certainly as often as among youngsters anywhere.

On the other hand, a disproportionate number of inner city youngsters have been adversely affected by their pre-school social experience. Often desired experiences have been missed and numerous undesirable events and conditions have been experienced. Parents working more than one job, frequently changing residences within the city and between regions, insufficient supervision of play, crowded home with over-stimulation of all kinds, parents overwhelmed by their own problems being unable to respond adequately to the child's needs are but a few of the difficulties. Lonely, neglected, exploited, angry and abused children are probably found in disproportionate numbers in some inner city schools. Thus a disproportionate number of children showing developmental lags, skill deficits and other difficulties are found here.

In most classrooms, regardless of socio-economic level, some children will manifest impulse control difficulties, excessive dependency, inadequate curiosity, poor use of speech for communication and a variety of other problems. Where there are one or two children with such problems, teachers are able to develop special programs, give special attention within the classroom or supportive personnel are able to arrange for compensatory help outside of the classroom. In this way, the provocative and impulsive child eventually learns to get along with others. The dependent, restricted youngster gains support for independent thought and action per-

mitting him or her to grow and mature psychologically and socially and so on. Children prepared, socially and psychologically, for learning do not lose out through classroom disruptions or excessive teacher attention given to children with special problems. But such adjustments are possible only where the number of youngsters requiring additional help is small enough, the teacher is trained to detect and deal with special problems and adequate support staff is available. Inner city schools often suffer on all three scores.

Many cities are losing taxable industry and business to suburbia or to the South and are trying desperately to attract new industry and redevelop business areas. Property owners have paid more than their share to provide for education services. The support of schools and other social service activities has been less than desired as a result. Thus for many years now inner city schools have been getting by with barely enough staff to maintain little more than custodial services in which education sometimes takes place--when exceptional children and teachers happen to meet. Complicating the problem, school systems short of funds or because of prejudice have often concentrated more and better personnel in schools attended by middle income, usually white youngsters. In one inner city school a paralyzed teacher unable to speak clearly was allowed to spend almost a year--to teach reading no less. In another, a frankly psychotic teacher frightened the youngsters. Teachers with personality problems are assigned to the "Siberia" of education--inner city schools--with frightening regularity. This, of course, is precisely the place they should not be. Many children with minimal deficits and difficulties in inner city could compensate if they had experienced, well-prepared teachers, administrators and support personnel in sufficient numbers.

Children unable to receive adequate help become more troublesome behavior problems, parents are unhappy, teachers are disappointed and some schools, even after an input of special programs, remain little more than places of custodial care. In such situations there is a high staff turnover, with all the instability this involves. Parents withdraw or are unwanted and can lend little support to education. Administrators are constantly involved in day to day emergencies and unable to give young teachers support in instructional areas or to develop school programs which would improve the spirit, morale and sense of purpose, order and stability which occur so regularly in middle income schools that it is taken for granted. Yet it is the inner city schools with a disproportionate number of children with certain motivational and developmental deficits which are more in need of creating such conditions.

The stage of program refinement which follows the stage of stability often cannot occur in many inner city schools. Careful analysis of reading skills and deficiencies of the individual child and special reading programs for individuals or groups with similar problems cannot take place. The achievement test is often treated as an object designed to embarrass the youngsters rather than a tool to be used to modify and adapt curriculum and teaching methods to better meet the needs of the children. Indeed, many if not most inner city schools have little time or personnel to develop in-service programs needed to focus in on the critical deficits and to design approaches necessary to meet these needs.

Recently very dedicated and bright teachers have been seeking inner city school assignments. But many are young and inexperienced and have limited understanding of the complexity of problems within the inner city

school or the difficulty many families in the surrounding community experience. Too often there is a feeling that previous teachers and administrators have deliberately abused the children and there is a need to rescue them. Such teachers often clash with others who have "given up" or been overwhelmed by the system, and an atmosphere of chaos and controversy develops. Too often there is an investment in innovative techniques which do not allow teachers to look at the child as an individual, where he is in his development, and what is needed to compensate for deficits. Yet the involvement of such teachers is a hopeful sign. But if they are to be effective and to strengthen the inner city school, they should enter a system which has achieved a relatively high degree of stability and is prepared to assist them in becoming effective teachers in this setting. Without such support, they are likely to fail, leave or "give up" and remain, making adjustments which compromise their effectiveness.

To date, help for the inner city school has been an input of new ideas, people, programs, etc. without systematic attention to the critical aspects of basic school programs. Unlike the good football teams which, when showing signs of slipping, revert to fundamental patterns of blocking, tackling and passing, schools have gone for the razzle-dazzle plays. Cultural enrichment, ethnic relevance, new techniques, fancy new buildings and the like have been the response to the crisis in inner city education. The principal of one inner city school recently counted twelve new program inputs in his school within three years, all now abandoned, none carefully evaluated, with little apparent impact on the youngsters. Yet few things are more cherished in education than innovation.

One of the dangers of rapid innovation is apparent in the comment of a teacher involved in a special program. She said, "The children appeared

bright enough but 'they' just didn't learn or certainly it wasn't reflected on their achievement tests." Some will acknowledge that the achievement tests are often "not valid" for inner city youngsters. But when a program innovation fails it is often suggested that it is either the fault of the youngsters or irrelevant measures of success or failure were used. Rarely does an innovator question the appropriateness of the innovation for the system into which it was introduced.

The twelve new programs mentioned were introduced into a school in which the administration rarely had a chance to respond to anything but behavioral emergencies. Continuity of program planning and development was hardly possible from day to day, not to even consider months and years. The coordination of special program work with the classroom teacher was not possible. Cultural enrichment when many of the children involved did not know how to attack or sound out a word was of questionable value. The participation of children in interesting, stimulating and exciting activities--different in kind than those they received at home but similar in impact--was fun but did little to help the youngsters learn to get along with each other and respect the rights of others. (These are necessary lessons to learn in order to go the long haul in education and life.) Often people participating in the program did not appreciate the important socializing function they needed to perform while working with children, some of whom would not receive guidance and direction along these lines at home or from other adults.

Instructional technology introduced into a school or system operating at a "survival level" can be another burden for administration and teaching personnel. Increasing the vocabulary of a child through instructional equipment will usually be of limited value in a chaotic system not capable

of producing or sustaining a learning environment. Even in schools operating at a relatively stable level, available instructional equipment will not be used or fully exploited without sufficient preparation of teachers. In one Southern city, expensive television equipment has not gotten beyond the school warehouse because of staff unfamiliarity and lack of knowledge relative to the educational possibilities of the equipment. The use of such equipment was "somebody's good idea," an innovation, but that is as far as it got. Careful planning, preparation and integration of the equipment into a well thought out school program did not take place.

Obviously, improving the education of the inner city school is no quick and easy task. There is no magical person, technique or technical development which will bring the potential of the inner city youngster to fruition. Yet technology can facilitate the stabilization of a school or school system, improve staff effectiveness and facilitate the training aspect of the educational process when properly introduced and utilized in a school district or system. These are interlocking considerations and like "old fashion" love and marriage, you can't have one without the other. The use of technological equipment for instructional purposes in the inner city school is much more likely to be of value after it has been adequately utilized to prepare teachers to work in the school setting and after it has been fully exploited to facilitate administrative functions.

Preparing the young teacher to work effectively in inner city schools could be an important and efficient use of instructional equipment. Like the young medical student, the future teacher often does not see the future consumer of his services until very late in his training. It is true that both have little to offer prior to that time but they certainly have a lot

to learn. Yet exposure to the classroom at an early stage of development is even more impractical on a large scale for future teachers than contact with patients is at an early stage of development for future doctors. But it is most important that the theory-practice gap be diminished. It is this gap which necessitates a "baptism by fire" which many young teachers do not survive. One way to do this would be through the use of closed circuit television observation of successful and unsuccessful teaching techniques. Other instructors observing with the students could help the students learn to observe as well as interpret the activities in the observed classroom.

One of the very important needs in teacher education is to help young students, 18-22 years of age, often struggling with their own negative feelings about authority, separate their own needs in this regard from those of their future charges--young children. Indeed a confusion between certain admirable social values and developmental needs of children is a huge pitfall for many teachers. "Freedom and justice for all" is a highly desirable state to achieve for mature people who have developed personal controls, a sense of responsibility and respect for the rights of others. To not set limits for a youngster doing what all normal youngsters do--test a given social setting for the range of permitted behavior--is to invite chaos. Chaos in the first few weeks of school often leads to pupil control of the classroom from which many teachers can never recover.

Permissiveness is not freedom. Children are free to explore and investigate, invest in ideas and activity when their social system is relatively stable and they are free--by virtue of a clear set of just and reasonable external expectations--from the effect of their own aggressive impulses and those of others around them. Yet young teachers often mistake a

youngster moving from one object to another as a curious scholar in pursuit of more information about a fascinating idea. Dangerously impulsive youngsters are too often viewed as "beautifully spontaneous." Excessively hostile and self-destructive youngsters--hiding behind racial or class prejudice or a variety of other defensive tactics--are too often viewed as appropriately rebellious. When two black youngsters refused to attend the Social Issues class conducted by a white teacher because "only a black teacher could understand," the teacher agreed. She failed to consider the fact that the youngsters were not attending other classes and as it turned out, did not attend the Social Issues class conducted by a black teacher.

There is little reason that case studies--educational not clinical--could not be used to help future teachers understand the meaning and manifestations of child behavior. Methods and ways to deal with such problems could be demonstrated by master teachers and behavioral scientists through the use of film, film strips and television. This would be particularly helpful in areas where child behavior consultation is not available. The demonstration of the application of such techniques rather than simple theoretical discussions is critical in that the distortion and misapplication of behavioral theory can be more harmful than good. The complexity of a troublesome interaction can better be demonstrated through the observation of a real or simulated classroom situation than by a discussion of theory. Discussion could be around the concrete issues based on the actual observation.

A third major need in the preparation of young teachers is to help develop self-appraisal and appraisal of the effect of certain techniques. Education like other disciplines in which dynamic process variables--environment, relationships, etc.--cannot be easily controlled and measured

suffers from "advocacy training." The latest and successful method being used in Ceylon which catches the eye of the visiting professor from the United States can become the "answer" for the needs of children in Harlem without critical evaluation. When the professor is popular, powerful and prolific in his publications, it is much more likely that "the method" will catch on and will be utilized without asking critical questions.

Every student should be trained to ask, "But will it work with some, all or any of my students? Will it work in a given community? Is it what the parents want for their children? Is it what the children need to cope in their present and future environments?" A commitment to a given approach makes for teacher security but if it does not meet the needs of a given child at a given time, use of the approach is a disservice...indeed poor teaching. Master teachers and skilled educational diagnosticians--rarely available in isolated or low income areas--could help teachers learn to develop the skills to pick up learning problems and to test the effect and appropriateness of a given approach or technique. Such a development would permit teachers to become independent and flexible based on a pupil-centered guide rather than the rigidity of response fostered by dependence on "an expert and his notions." At a given time, with a given situation, a given school, a given child and community, there can only be one expert--the teacher on the scene. If that teacher is not an independent operator, capable of diagnosing the deficits and needs of a child or group of particular children and developing a program or technique to meet those needs, the children will pay the price. Through film, television, etc., it is possible to demonstrate the weakness of a method-centered rather than a pupil-centered approach. This is particularly important where schools of education

are dominated by instructors belonging to a certain school of thought.

The individual school or school system can benefit from technological aids in many ways. Schools have now become exceedingly complex social systems. Children and adults are together. Teaching staff of varied backgrounds and experiences must interact with social service personnel and other helping professionals. Non-professional personnel--aides, community workers, custodians, clerical workers, often food service workers, etc.--are all supposed to work as a team with the professionals. Parents, volunteers, visiting teachers, helping teachers and others are in and out of the school. The potential for inter-actional difficulties to occur in this complex mix is high. When the mathematics specialist remains at odds with a classroom teacher, the children are cheated.

Someone must supervise the safety patrol program, student government, physical fitness, the special program in the creative arts, the language club, the choral club and the like. When sister service agencies need information on children and families, they send their questionaires through the school. When the local university students want to do research, they call on the schools. The teacher aide program must be supervised and the good school maintains close relationships with parents and provides curriculum support for teachers. All of these programs must be coordinated through the principal. Yet the principal is often asked to collect the milk money, sign for bus rentals, lock the movie projector only in his office and fill out numerous reports.

The chewing gum company across town has a well-paid executive with a degree in business administration and a year of in-service training under supervision before he is given less responsibility than most school principals

are asked to assume. Many school principals are ex-teachers with no background in administration. Many do not understand the importance of administration in facilitating education. Some wish to get away from the classroom and do not appreciate the importance of providing instructional support. Those who are competent and capable of providing administrative and instructional leadership are often overwhelmed by the sheer volume of demands. Only a small percentage of schools and school systems are utilizing the data processing equipment which facilitates the work of business and industry.

The presence of three new apartment buildings and a road project in an adjacent school district should not find a school unprepared for the 150 extra children it is forced to take. There is little reason that the 3rd grade teacher who works well with withdrawn children but poorly with impulsive children should have four children with impulse control problems in her class while the 3rd grade teacher across the hall has no children with serious impulse control difficulties. Significant health and performance problems discovered in one grade should not be lost to the child's teacher the following year because of an avalanche of time-consuming record keeping. Achievement and learning diagnostic tests should not be meaningless ritual, with the results never being available to the teacher. Yet all of these conditions exist from time to time and at one time in some inner city schools. These conditions result in confusion, disruption, a lack of continuity, frustration and result finally in pupil underachievement.

Data processing equipment could facilitate planning of all kinds and at all levels within a school or school system. Profiles of a given community, school, staff and children could be maintained and utilized to

develop all aspects of the school program. Cost analysis could be developed. Material selection could be related to student needs. Material acquisition would require less time. All of these actions would free the administrator from time-consuming detail and permit this time to be spent in support of classroom instruction.

There is well-founded belief that schools should be managed by people with classroom experience rather than professional administrators. Whether this is necessary or not is as open to debate as the question of whether the chief hospital administrator needs to be a physician. The likelihood is even greater in education that a former teacher will serve as principal. This being the case, "packaged" instruction in administration--particularly where formal training is difficult to come by--would be of help. Films, tape, etc. would be useful in this regard.

Every measure which facilitates smooth administrative procedure and reduces the time needed for it, permits more focus on the students. But most important there are direct uses of instructional technology which can be of value to children. Children learn through their various sensory modalities--sight, sound, touch, etc. Lecture largely utilizes only one modality and reading another. Children who learn best by hearing may not be stimulated by visual instruction and vice versa. Technological aides can easily combine one or all of the sensory modalities.

Several educators and social scientists have pointed up the fact that many inner city youngsters speak an English dialect. There is also some evidence that some do not hear all of the language of the teacher who is speaking with different voice inflections, intonations, phrasing, etc. Some "tune out" or remain confused. Yet it is important for the child to feel that the language of his home and neighborhood is not "wrong" or less

good but different. Recorded instruction heard through individual head sets would permit children to hear the different language of the school under better conditions and without the risk of implying that the dialect was wrong.

A number of educators and social scientists have indicated that self recording and play back has been of value in "opening up" abused and suspicious youngsters who are turning off the classroom fare. Such equipment enables the child to view himself as an agent of action; to hear his own voice and his own language as it is. One caution here is that classroom teachers who "open children up" and receive emotionally powerful responses should be trained to deal with the content. Otherwise the child becomes defensive again or feels tricked or violated.

Instructional technology probably has the most to offer inner city school programs in the area of basic skill development. The amount of drill time needed here can be sharply reduced. This is important where a disproportionate number of youngsters have skill deficits. On the other side of the spectrum, new technological aids offer children the opportunity to work out their own programs and proceed at their own rate of speed.

Educators have pointed up several major problems children from difficult backgrounds often present. Time-space orientation, synthesis of ordering of stimuli and/or focus on critical stimuli are some of the more important ones. Without these skills children may have trouble finding a point on a map, conceptualizing or understanding the point of a play or story, etc. Technological aids, particularly in the early grades, can be useful in developing these skills.

But education is more than learning skills necessary to get a job. Education should facilitate the total social, psychological and intellectual

development of an individual. No machine or device is capable of doing this. Only a human agent able to stimulate curiosity, and a spirit of inquiry, evoke feeling and emotion , provide guides and help the youngster examine himself in relationship to people and things outside himself can be a total educator.

The cultural enrichment programs so widely used in inner city schools often fails to recognize the critical role of the teacher in making the experience relevant. A day at the theater may mean little to some youngsters unless it can be made relevant. Indeed the same is true of readers. Dick and Jane and their visits to grandmother's farm have been widely castigated as injurious to the self-image of the inner city child and as irrelevant and outside their experience bank. There is some truth in these claims--although probably more black children spend their summers "in the country" than middle income black or whites. But many children, black and white, are able to get interested in ideas, conditions and things outside their own experience. Whether new experiences are relevant or not probably depends on whether the teacher has promoted a spirit of inquiry and is aware of the need and has the ability to help children integrate a new experience into their past experiences. One inner city teacher noted that his pupils "checked out" on a story about escalators because they had never seen them before. But when he asked them to imagine the stairs to the playground slide moving to the next floor, they checked back in with great interest, evidenced by a flood of questions after the explanation.

Even then it was not the teacher's diagnostic ability alone that saved the day. This was a teacher who had a positive relationship with his class. His relatedness, concern, interest--all demonstrated over time--were factors which helped the youngsters tune in. His pupils identified with him and

accepted his interest--teaching and learning--as something worthwhile. This, of course, is of vital importance where parents have not transmitted this message.

The point here is that the machine cannot and should not replace the teacher. In fact, if the teacher does not embrace the machine, it can be tuned out. Technology obviously has a place in the inner city school; therefore, it should be introduced carefully, with much planning; **and with demonstrations of potential and limits.**

Where regional or city-wide closed circuit television programs are utilized, another consideration must be made. Master teachers or specialists may be threatening to a classroom teacher or may be out of touch with classroom problems peculiar to a given school setting. Without contact and a chance for exchange and clarification, the helpers may be rejected. Seminars and visits between the experts and the classroom teacher could prevent the development of a barrier.

Most important, technological instruction should be planned in conjunction with parents and school staff where possible. The objectives and goals of a given school program should be taken into consideration. The most urgent and important areas of concern should be identified and given highest priority. To give equal emphasis to social studies and reading when 60% of the children are two years behind in reading is wasteful. Joint planning gives a local school staff an investment in a particular approach or technological aid. This will help teachers maintain enthusiasm and interest which is important in motivating pupils.

Finally, developers of instructional technology should think about the possibilities of helping teachers be more effective human beings. In

all professions in which personal qualities are an integral part of the "tools of the profession", it is important that attempts be made to favorably modify troublesome characteristics. Psychotherapists, teachers, actors, social workers, etc. can motivate or fail to motivate their consumer, in part on the basis of personal style, relatedness capacity, etc. It has been argued that where such qualities are important, the best professionals are made in heaven and not in college. But this is an overstatement.

Many people simply have speech and voice problems which can be modified. Others simply fail to utilize their hands and body effectively. Some are unaware of their difficulty with closeness and physical contact--a very real problem with very young children. Some have trouble acquiring interest and attention. Often these problems are functions of deep-seated personal problems but do not come to a teacher's awareness. A young teacher "inching" away from a child crowding her for closeness was surprised when an observer noted the reaction. She was able to correct her response in a very natural manner once she was aware of the problem. Technological equipment--tape recorders, television, etc.--could be used at the college level and in in-service training and evaluation programs in schools.

It can not be argued that instructional technology must wait until teacher education is adequate and administrative operations are functioning well. Certainly there can be benefits for some. The point being stressed is the wide range of possibilities for technological aids in the school and their direct relationship to pupil learning. The caution being stressed is that technology is not a cure-all, particularly when introduced into a

mal-functioning social system. It can be, with adequate preparation, an important part of bringing quality education to inner city schools.